

### Claims

What is claimed is:

1. A variable magnification optical system comprising:

a pair of ellipsoidal mirrors each having an axis and positioned so that a point at which radiation reflected from the first mirror of the pair of mirrors is focused corresponds substantially with an input focus of the second mirror of the pair of mirrors.

2. The optical system as set forth in Claim 1, wherein the mirrors are pivotably mounted so that an angle subtended between the axes thereof can be varied.

3. The optical system as set forth in Claim 1, wherein the magnification of the first ellipsoidal mirror is substantially the reciprocal of the magnification of the second ellipsoidal mirror.

4. The optical system as set forth in Claim 2 further comprising:

a first pair of ellipsoidal mirrors (30, 31) each having an axis and including:

a first input mirror (30) having an object focus point (34) and an image focus point (37);

a first output mirror (31) having an object focus point (37) and an image focus point (36);

wherein the first pair of ellipsoidal mirrors (30, 31) are positioned so that the image focus point (37) of the first input mirror (30) corresponds substantially with the object focus point (37) of the first output mirror (31);

a second pair of ellipsoidal mirrors (32, 33) each having an axis and including:

a second input mirror (33) having an object focus point (36) and an image focus point (38);

a second output mirror (32) having an object focus (38) point and an image focus point (35);

wherein the second pair of ellipsoidal mirrors (32, 33) are positioned so that the image focus point (38) of the second input mirror (33) corresponds substantially with the object focus point (38) of the second output mirror (32);

wherein the image focus point (36) of the first output mirror (31) is substantially the same as the object focus point of the second input mirror (33);

means for adjusting the relative position between the first and second pairs of ellipsoidal mirrors (31, 32, 33, 34) wherein the image focus point (36) of the first output mirror (31) is constrained to move along a predetermined path to achieve a change in magnification.